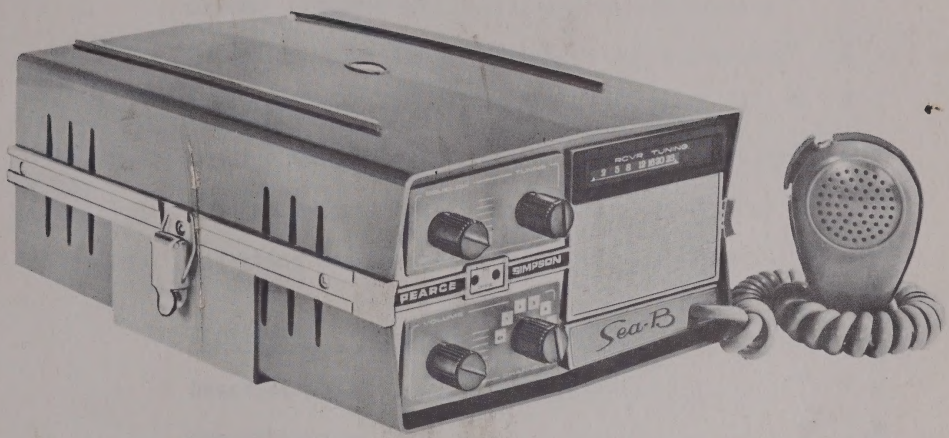

SEA - B

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SECTION 1 OPERATOR'S GUIDE

Citizens Radio Service

According to FCC Rules and Regulations, Part 95, Section 95.1, the Citizens Radio Service is intended to "provide for private short-distance radiocommunications service for the business or personal activities of licensees".

The following are some of the Rules and Regulations of particular importance to the new licensee:

95.3 (A) CITIZENS RADIO SERVICE. " A radiocommunications service of fixed, land and mobile stations intended for short-distance personal or business radiocommunications, radio signaling and control of remote objects or devices by radio; all to the extent that these uses are not specifically prohibited in this part."

95.3 (B) CLASS D STATION. "A station in the Citizens Radio Service licensed to be operated on an authorized frequency in the 26.96 - 27.23 Mc/s band or on the frequency 27.255 Mc/s, with input power of 5 watts or less and for radiotelephony only."

95.105 CURRENT COPY OF RULES REQUIRED. "Each licensee in this service shall maintain as part of his station records a current copy of Part 95, Citizens Radio Service, of this chapter."

TRANSMITTER IDENTIFICATION CARD. "In accordance with Rule 95.101, an identification card, legibly indicating the call sign and the Licensee's name and address must be affixed to the transmitter. Attach this card to the side of the transmitter in a readily visible location."

DO NOT TRANSMIT WITH YOUR EQUIPMENT UNTIL YOU HAVE RECEIVED YOUR LICENSE FROM THE FCC. Illegal operation can result in severe penalties. Be sure that you have read and understand Part 95 of the FCC Rules and regulations before operating your station.

FREQUENCIES AVAILABLE FOR CLASS D OPERATION:

Channel	Mc/s	Channel	Mc/s	Channel	Mc/s
1	26.965	9	27.065*	17	27.165
2	26.975	10	27.075*	18	27.175
3	26.985	11	27.085*	19	27.185
4	27.005	12	27.105*	20	27.205
5	27.015	13	27.115*	21	27.215
6	27.025	14	27.125*	22	27.225
7	27.035	15	27.135	23	27.255*
8	27.055	16	27.155		

*Channels available for communications between units of different stations. (In accordance with FCC Part 95 as amended effective November 1, 1964.)

TRANSMITTER IDENTIFICATION CARD

When you have received your license, fill out the transmitter identification card #FCC Form 452-C and attach one to each SEA B. This is required by law. Attach it to side of cabinet - not top or bottom.

DO NOT TRANSMIT WITH YOUR EQUIPMENT UNTIL YOU HAVE RECEIVED YOUR LICENSE FROM THE FCC. Illegal operation can result in severe penalties.

INSTALLING YOUR SEA B TRANSCEIVER

Before discarding any of the packing materials, check it carefully for items which you may have overlooked. You should have, in addition to the envelope which contained this manual: a microphone, and AC power cord*, A DC power cord and a package containing your transmitter and receiver crystals. The envelope with the manual contains a warranty card, a license application, a transmitter identification card and a small envelope containing 23 numbered channel indicator buttons.

INSTALLING CRYSTALS AND CHANNEL INDICATOR BUTTONS

Remove the top cover of the set by removing the two screws located at the top rear of the cover. Raise the rear edge of the cover slightly and slide it to the rear, then lift it off of the set.

Insert the transmitter crystals in the front row of crystal sockets and the receiver crystals in the row behind it with the receiver crystal for each channel directly behind the transmitter crystal for that channel. The number printed adjacent to each socket corresponds to the channel selector switch position for the crystal installed in that socket. (Switch positions read clockwise.)

Select the numbered channel indicator buttons for the channels for which crystals have been installed. Press these buttons into the holes arranged around the selector switch knob with the channel number at the switch position that corresponds to the position in which the crystals for that channel were installed.

INSTALLING FIXED STATION

For fixed station operation, plug the AC power cable into the back of the unit and connect to the power source. Turn the power switch knob (back of unit) to the appropriate (117V) position. Connect the antenna to the terminal on the back. The transmitter has been pre-tuned at the factory; however, it is still desirable to check the plate tuning and the antenna tuning and loading controls must be adjusted to match your antenna. See antenna loading instructions.

INSTALLING MOBILE STATION

For mobile installation, universal mounting cradle serves as a convenient means of mounting the SEA B under the dash or in any other convenient location in the vehicle. When used in automobiles, trucks and boats, it will usually be necessary to suppress ignition noise. In most cases, the installation of distributor suppressors and generator condensers will be sufficient. In severe cases, the services of a qualified technician may be required. Check with your dealer for PEARCE-SIMPSON suppression kits.

*Not used on the 32 V D.C. model.

FOR MARINE INSTALLATION

Two essential installation requirements are adequate clearance around the unit to assure air circulation for ventilation and protection from direct exposure to water. It is a good idea to make an easily removable plastic or canvas cover to provide protection when the unit is not in use.

The DC power cord, as supplied, has the fuse located in the positive battery lead for use in vehicles and boats using a negative ground system. For positive ground systems, the wire connections should be reversed, in the plug, so that the fuse will not be in the grounded side of the line. By locating the fuse in the "hot" side of the line, protection will be retained.

LOADING OF THE ANTENNA

Antenna loading and antenna tuning controls are accessible at the rear panel and their function is clearly marked.

The output circuits of the Sea B are so designed to match a non-reactive, 50 ohm load. It is therefore essential that the antenna itself be resonant. A whip antenna, without a ground plane or counterpoise cannot be loaded and definitely is not recommended. This antenna arrangement would give a false output indication on the transmitter power indicator.

NOTE: A greater radiating area on the antenna will tend to radiate a stronger signal, but this is true only if certain conditions are met. Merely putting up a longer antenna or one of greater area will usually reduce rather than increase signal strength since it will create a condition in which the antenna will not accept energy from the transmitter. A certain relationship to the frequency being transmitted and the length of elements must be met. When this condition is achieved, the antenna is said to be resonant at that frequency. This element length, the construction and the feed point will determine the impedance, in ohms, of the antenna. The means of determining and measuring these conditions are highly technical in nature and are beyond the scope of this manual.

CHECKING FOR DIP

Your SEA B has been tuned into a 50 ohm, purely resistive load, before leaving the factory. However, at the time of installation this adjustment should be checked to insure maximum operating efficiency. An indication of correct plate tuning is shown when minimum reading on an 0-100 MA meter, plugged into the meter jack on the rear of the set is obtained.

Tune the transmitter on channel 14, 15 or 16, or if this is not possible, select a channel near the middle of the group that will be used.

Turn the transmitter antenna capacitor to line up the red dots. This turns the capacitor to minimum capacity.

IMPORTANT

See FCC Rules and Regulations, Part 95, Section 95.97 before attempting this adjustment. Transmitter adjustments must be made by, or under the direct supervision of, the holder of a 1st or 2nd class radio operator's license.

Now, adjust the plate tuning capacitor for "dip" or minimum meter reading. Use an insulated screwdriver for this adjustment. The plate tuning capacitor is located inside the set near the 6CZ5/6973 final amplifier tube. Minimum meter reading should be approximately 6 MA.

TUNING AND LOADING THE ANTENNA

Adjust the antenna tuning capacitor until maximum brilliance of the transmit power indicator lamp is obtained.

The plate milliameter will indicate the loaded plate current. This must be no more than 18 MA. For legal power input. If the loaded plate current is more or less than 18 MA, the antenna loading capacitor should be adjusted so that this current is indicated. Turn adjusting screw CLOCKWISE to INCREASE loading and COUNTERCLOCKWISE to REDUCE loading.

Adjust brilliance of transmit power indicator to suitable level by tuning lamp brightness capacitor. DO NOT make brilliance more than necessary to give a good indication, as this lamp uses transmitter power.

TUNING THE RECEIVER TO THE ANTENNA

For maximum sensitivity, tune the receiver to the antenna. First, turn the squelch all of the way off, then adjust the receiver antenna trimmer capacitor for maximum received signal.

ANTENNA CONSIDERATIONS

A wide variety of antennas are available for Citizens Band use. The most efficient for your particular needs should be chosen. Your dealer can give valuable assistance in your selection.

The following information will be of help in determining what type will be most desirable for your needs.

Base Station: The directional beam type of antenna, used within its limitations, is the most effective type to deliver the strongest signals in a particular direction. Gain in one direction is achieved by concentrating the radiated energy into a beam much as the reflector in a flashlight contentrates light. This gain is made at the sacrifice of signal strength in all other directions. This effect is also true when the antenna is used for receiving, resulting in reducing the signal strength of stations from other directions which might interfere with communications. This type of antenna is very desirable for communicating with stations in a particular area. By the addition of a rotator, you will be able to beam your signals in any direction.

NOTE: The reference of antenna efficiency is a standard Dipole antenna. For example, a beam antenna listed as having 6 DB gain means that it has 6 DB of gain over a Dipole (in the direction it is pointed). Each 3 DB of gain is equal to doubling the power, therefore, 6 DB would equal 4 times the power. A transmitter with 3 watts output would produce as strong a signal, with a 6 DB gain beam, as would a 12 watt transmitter feeding a Dipole. Besides the gain achieved by the beaming of the signal, additional efficiency is obtained from the added, tuned elements.

When 360-degree coverage is needed for communicating with several stations in different directions, the ground plane type of antenna is very effective. This type affords excellent coverage for communicating with mobile stations which are constantly moving from one area to another.

A modification of this antenna is the colinear ground plane which is actually a form of a beam. The beaming effects of the antenna are in a vertical direction concentrating the energy nearer the ground and reducing the sky wave which would otherwise be lost.

For a base station, the whip antenna is the least desirable type and should be used for very short range or when no other antenna can be installed in the space available. If it is necessary that the antenna be installed on, or adjacent to the equipment, a "V" or rabbit ear type is much more desirable.

Polarization: For the most efficient communications, the antennas at each station should be mounted in the same plane, I.E. Both should be vertical or both should be horizontal. Since a major use of Citizens Band Radio is communicating with mobile units which are equipped with vertically mounted whip antennas, the vertical plane is preferred.

Mobile Stations: A whip antenna can be used for automotive installation with good efficiency because the automobile acts as a counterpoise and reduces detuning effects. The mounting location on the automobile can have a pronounced effect on its characteristics and efficiency. A full quarter wave whip mounted in a favorable location is usually the most effective. The so called "shortened whips" lose efficiency because the radiating area is reduced. However, an improvement is sometimes shown as the "shortened whip", may be mounted in a more advantageous position, such as in the middle of the top.

For Marine installations, either a sleeve or top-loaded antenna provides the best operation. This type of antenna is extremely efficient and easily installed on a vessel in either a fixed position or by use of a folding mount. Wood or fiberglass boats using top-loaded or whip types should have a metal ground plate of at least six square feet installed outside the hull under the water line to provide a proper ground for the antenna. The antenna is then connected to this ground plate by means of a heavy copper wire which should be as short as possible. As a substitute for the ground plate, four nine-foot lengths of copper wire (#14 or larger) may be connected to the antenna base mount with the wires running outward as nearly radially as possible. These ground radials may be attached to the inside of the hull by means of clamps or staples. If it is necessary to bend the end of the wire back upon itself, insure that the end does not come in contact with any part of the radial.

OPERATING YOUR SEA B

Spend a few minutes familiarizing yourself with the location and use of the controls and features of your Sea B and operation will become automatic, allowing you to concentrate on its fine communication capabilities.

The main power switch is located on the squelch control. The first few degrees of rotation will turn the set on and further rotation will place it in a squelched condition. To adjust the squelch, listen for normal received noise (control counterclockwise), then advance control (clockwise) until the background noise just disappears. It is most important to use just enough squelch to remove "between signal" noise as squelching too deeply will make it impossible for a weak signal to trip the squelch.

The volume control is located directly below the squelch control. Audio power to meet your needs, even in noisy locations, has been designed into your Sea B.

Set the channel selector switch to the desired channel; the channel indicator button for that channel will be lighted and provide continuous indication of the channel in use. Both transmitter and receiver will be pre-tuned to the channel on switch positions 2 - 6. In the first position, the tunable feature of the receiver will be placed in operation and the external crystal socket will be connected. Transmitter crystals for additional channels may be plugged into this socket and any of the 23 channels may be tuned in with the tuning control.

For general listening across the band, the tunable receiver will be found useful and 23 channel coverage is possible by using it in conjunction with transmitter crystals to plug into the external crystal socket.

A built-in, pre-adjusted noise limiter is included in the circuitry of your Sea B. Noise peaks that exceed the level of the received signal are removed, making it very effective against impulse noise such as the ignition of passing autos.

The transmit power indicator lamp will light during transmit operation giving indication that the transmitter is operating. Intensity of the light will increase with modulation as you speak into the microphone indicating that you are modulating properly.

A clearly marked switch on the rear panel provides proper connections for either 117 volt AC or 12 volt DC operation.*

A plug is provided on the back panel for connection of a PEARCE-SIMPSON illuminated "S" meter.*

Two pins of this plug are arranged for connection of an external or remote speaker. Connections are labeled on the panel.

The 32 volt model has the connections for the external or remote speaker.

**This feature not on the 32 volt model.

SECTION II TECHNICAL AND MAINTENANCE

The SEA B is housed in a compact aluminum cabinet measuring 8-3/4" wide x 12-1/4" deep x 5" high. The following accessories are included with the SEA B: Attached carbon microphone with coil cord, a fused power cable for 12 or 32 volts DC operation, depending upon the voltage of model, and a 117 volts AC power cord with dual fused plug, * also an adjustable universal mounting cradle.

The receiver is a sensitive superheterdyne, with pre-set built-in noise limiter. Either crystal control on any five selected channels or tunable operation over the entire band is available. Temperature compensation is employed to minimize drift. An "S" meter is available for tuning and signal strength indication.*
A highly effective, fully adjustable squelch circuit is incorporated in the circuitry. Excellent selectivity is obtained by the use of two stages of I.F. amplification, with six tuned circuits employed. A tuned R.F. stage is used to insure a good signal to noise ratio. Audio frequency response is tailored, to give a high intelligibility on speech frequencies.

The transmitter is crystal controlled on any of five pre-selected channels, and 23 channel coverage is available by inserting crystals for additional channels in a socket provided on the front panel. High level amplitude modulation, employing saturation limiting, is used for best possible speech transmission. Transmitter power out is indicated by a light on the front panel. Modulation is indicated by an increase in brilliancy of the light.

A dual tuned output tank circuit is used for maximum harmonic attenuation and a buffer amplifier is used between the crystal oscillator and final amplifier to provide maximum stability and low crystal current.

A dual voltage power supply provides for operation on either 117 volt house current or 12 volt DC battery supply.* It is necessary only to plug the proper cable into the back of the unit and turn the change-over switch to the proper position. The SEA B cannot be damaged by improper polarity connection, as the transistor power supply is protected against this eventually.

SPECIFICATIONS

Receiver

Signal to Noise Ratio	:	Better than 10 DB @ 1 microvolt.
Image Rejection	:	Better than 50 DB down.
Squelch	:	Adjustable .5 to 1000 UV
Noise Limiter	:	Pre-set series type
I.F. frequency	:	455 KC
Current Drain	:	55 watts @ 117 volts AC
During Receive	:	4.0 amp @ 12 volts DC 1.5 amp @ 32 volts D.C.
Crystal Formula	:	Channel Frequency in KC-455 KC = Receiver Crystal Frequency in KC

Transmitter

Power Input	:	5 watts
Power Output	:	3 watts (50 ohm load)
Modulation	:	100% AM (on peaks)
Crystal	:	3rd overtone type
Current Drain	:	70 watts @ 117 volts AC
During transmit	:	5.1 amp @ 12 volts DC 2.3 amp @ 32 volts DC

* This feature not used on the 32 volt DC model.

NOTE:

Due to the large selection of crystals available, your SEA B has been shipped without the crystals installed. You will find them in a small package contained in the shipping carton. You may order any of the twenty three frequencies from your PEARCE-SIMPSON dealer or direct from our factory.

The type and quality of these crystals are very important and only crystals which have been properly calibrated for use in this set should be used. This insures correct frequency tolerance in accordance with FCC regulations.

TUBE AND TRANSISTOR COMPLEMENT

V-1	(A)	6GH8	Receiver R.F. amplifier
V-1	(B)	6GH8	Receiver 1st Audio/Transmitter microphone amplifier.
V-2	(A)	6GH8	Mixer.
V-2	(B)	6GH8	Receiver Local Oscillator.
V-3	(A)	6GH8	Receiver 1st I.F. Amplifier/Transmitter Buffer.
V-3	(B)	6GH8	Transmitter Oscillator.
V-4	(A)	6GH8	Receiver 2nd I.F. Amplifier.
V-4	(B)	6GH8	2nd Audio Amplifier.
V-5		6T8A	A.N.L./Squelch Control.
V-6		12AB5	Receiver Audio Output/Transmitter Modulator - 12 VDC/11VAC
V-7		6CZ5/6973	Transmitter R.F. Power Amplifier.
V-6		25BK5	Receiver Audio/Transmitter Modulator - 32 VDC ONLY.
	D.C. Power -	2 -	2N1540 Transistors - 12VDC.
		4 -	2N1540 Transistors - 32VDC.

R.F POWER AMPLIFIER NEUTRALIZING PROCEDURE

The R.F. power amplifier has been carefully neutralized during final tuning at the factory, and under normal conditions requires no further adjustment in the field.

However, in cases of major parts replacement or tampering, it may be necessary to check or reneutralize this circuit; if so, proceed as follows:

1. Plug 0-100 DC milliameter into jack provided on rear of unit.

2. Connect VTVM to GRID DRIVE TEST POINT. Set VTVM to read negative; use 50 volt scale.

3. Turn transmitter antenna tune capacitor to line up red dots. This turns capacitor to minimum capacity position and insures that the antenna circuit will not load the plate tank circuit.

4. Remove transmitter crystal from socket to insure no P.A. grid Drive from the crystal.

5. Using an insulated screw driver, turn the plate tune capacitor, through its entire range, noting the readings of both plate milliameter and the VTVM. If the VTVM reads any grid drive and the plate milliameter shows a dip from maximum (60 - 70 MA), the P.A. is not neutralized. Adjust P.A. neutralizing trimmer for zero grid drive. When properly neutralized, the plate tune capacitor can be rotated and the P.A. milliameter will remain at maximum.

W A R N I N G !!!!!

FCC Rules require that transmitter adjustments which may affect frequency, power output, modulation percentage or harmonic or spurious content of the output must be made by or under the supervision of the holder of a 2nd class or higher radiotelephone license.

ALIGNMENT INSTRUCTIONS

Equipment required: Signal Generator, V.T.V.M. 0-100 MA meter, 5 watt 50 ohm resistive dummy load (antenna), non-metalix hex alignment tool, non-metalix alignment screwdriver.

RECEIVER ALIGNMENT

Use only enough generator output to provide a usable indication.

SIGNAL GENERATOR	CHANNEL	ADJUST (order)	REMARKS
455 KC output, connect thru 47 PF capacitor to pin 2 (grid) of mixer. Common to Gnd.		T-8 Bottom T-8 Top T-9 Bottom T-9 Top T-10 Top T-10 Bottom	Connect V.T.V.M. set to read minus voltage, to AVC line. Adjust for highest reading.
Channel Frequency, connect to antenna terminal, common to ground.	14,15, 16 of center of group used.	C-16 T-5 Top T-5 Bottom T-6 Bottom T-6 Top	V.T.V.M. used as above see note for special instructions.
Leave connected as above, tune to channel 1 (26.965 MC)	1	T-12	Switch to tunable, set dial pointer to channel 1, adjust for highest meter reading.

NOTE: To insure maximum image rejection, back out bottom slug while adjusting top slug of T-5, then back off bottom slug of T-6 while adjusting bottom of T-5. Back off T-6 top, tune T-6 bottom, tune T-6 top.

TRANSMITTER ALIGNMENT

NOTICE: ADJUSTMENT OF OSCILLATOR AND BUFFER STAGES MAY BE MADE ONLY BY PROPERLY LICENSED PERSONS. SEE FCC RULES AND REGULATIONS PART 19, SUB-PART D, SECTION 19-71.

TEST EQUIPMENT	CHANNEL	ADJUST	REMARKS
50 ohm load, connect to antenna terminals. V.T.V.M. connect to OSC test point.	14,15,16	T-7	Turn slug into coil until meter reading is -4 to -5 volts. (Key transmitter during adjustment)
Move V.T.V.M. to grid drive test point.	as above.	T-4 Top T-4 Bottom	Adjust for maximum volts. Back off T-9 until -40 to -50 volts drive is indicated.
Same as above. Plug an 0-100 MA DC milliameter into meter jack on rear panel.	Crystal Removed	Ant. Tune to min. (line up red dots) neutralizing capacitor.	Remove transmitter crystal. Rotate plate tuning capacitor thru range. If grid drive meter shows any indication or if plate meter shows any dip, adjust neut. capacitor for 0 grid drive. When neut. is complete, no drive will be indicated and no plate dip will occur.

	TEST EQUIPMENT	CHANNEL	ADJUST	REMARKS
4	TEST SET-UP AS ABOVE. GRID DRIVE METER MAY BE REMOVED.	14,15,16 OR CENTER OF GROUP	PLATE TUNE	WITH ANTENNA LOAD CAPACITOR AT MINIMUM, AND CRYSTAL IN PLACE, ADJUST PLATE TUNE FOR DEEPEST DIP AS INDICATED ON PLATE MILLIAMETER. THIS SHOULD BE APPROXIMATELY 6 MA.
5	AS ABOVE BUT WITH ANTENNA THAT IS TO BE USED CONNECTED TO ANT. TERMINALS. AN OUTPUT METER OR FIELD STRENGTH METER MAY BE USED IN ADDITION.	AS ABOVE	ANTENNA TUNE	ADJUST FOR MAXIMUM PLATE CURRENT OR MAXIMUM RF OUTPUT.
6	AS ABOVE	AS ABOVE	ANTENNA LOAD	ADJUST FOR PLATE CURRENT READING OF 18 MA. (5 WATTS) CLOCKWISE ROTATION INCREASES LOADING. COUNTER-CLOCKWISE DECREASES LOADING.

NOTE: LAST 2 STEPS SHOULD BE REPEATED TO INSURE CORRECT ADJUSTMENT.

NOTE: ADJUST BRILLIANCE OF TRANSMIT POWER INDICATOR TO SUITABLE LEVEL BY TURNING LAMP BRIGHTNESS CAPACITOR. DO NOT MAKE BRILLIANCE MORE THAN NECESSARY TO GIVE GOOD INDICATION, AS THIS LAMP USES TRANSMITTER POWER.

CRYSTAL CHART

CHANNEL	TRANSMITTER-CRYSTAL FREQUENCY	RECEIVER CRYSTAL FREQUENCY
1	26.965 MC	8836.666 KC
2	26.975 MC	8840.0 KC
3	26.985 MC	8843.333 KC
4	27.005 MC	8850.0 KC
5	27.015 MC	8853.333 KC
6	27.025 MC	8856.666 KC
7	27.035 MC	8860.0 KC
8	27.055 MC	8866.666 KC
9	27.065 MC	8870.0 KC
10	27.075 MC	8873.333 KC
11	27.085 MC	8876.666 KC
12	27.105 MC	8883.333 KC
13	27.115 MC	8886.666 KC
14	27.125 MC	8890.0 KC
15	27.135 MC	8893.333 KC
16	27.155 MC	8900.0 KC
17	27.165 MC	8903.333 KC
18	27.175 MC	8909.666 KC
19	27.186 MC	8910.0 KC
20	27.205 MC	8916.666 KC
21	27.215 MC	8920.0 KC
22	27.225 MC	8923.333 KC
23	27.255 MC	8933.333 KC

VOLTAGE CHART

117 V AC INPUT

Tube	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8	Pin 9
V-1 6GH8	T-88 78	-1.8	136	* 0	* 6.3AC	120	0	1.7	0
V-2 6GH8	110	- .9	132	* 6.3AC	*12.6AC	132	0	0	TP-5
V-3 6GH8	T-62	-2.5	T-170 180	*12.6AC	* 6.3AC	T-170 180	0	0	T TP-5
V-4 6GH8	T-84 74	0	135	*12.6AC	* 6.3AC	165	2.7	S 10	S 7
V-5 6T8A	0	-1.2	.2	* 6.3AC	* 0	0	0	S -1.2	8.2
V-6 12AB5	NC	NC	12	* 0	*12.6AC	12	22	T-290 205	T280 220
V-7 6CZ5	T 125	NC	NC	* 6.3AC	* 0	TP T-50	0	NC	--

All measurements made using a V.T.V.M.

Conditions as follows unless otherwise noted:

Receive position - squelch turned off - crystal controlled - volume at minimum - no signal input - 50 ohm, 5 Watt resistive load connected to antenna terminal - transmitter loaded to 18 ma. input voltage 117 VAC Measurements made from chassis ground.

* Measured from Pin 4 of power input connector

T Measured in transmit condition

S Voltage varies with squelch control

TP Measure at test point

TUBE	PIN 1	PIN 2	PIN 3	PIN 4	PIN 5	PIN 6	PIN 7	PIN 8	PIN 9
V-1 6GH8	100K	3.5M	16K	FIL	FIL	16K	0	1K	35K
V-2 6GH8	40K	2 M	16K	FIL	FIL	16K	0	0	100K
V-3 6GH8	∞	1 M	18K	FIL	FIL	18K	0	0	47K
V-4 6GH8	29K	7Ω	16K	FIL	FIL	16K	470	2500	∞
V-5 6T8A	-	35 K	1.5K	FIL	FIL	0	1	1.5M	1M
V-6 12AB5	-	-	47K	FIL	FIL	47K	600	15 K	15K
V-7 6CZ5	∞	-	-	FIL	FIL	22K	0	-	∞

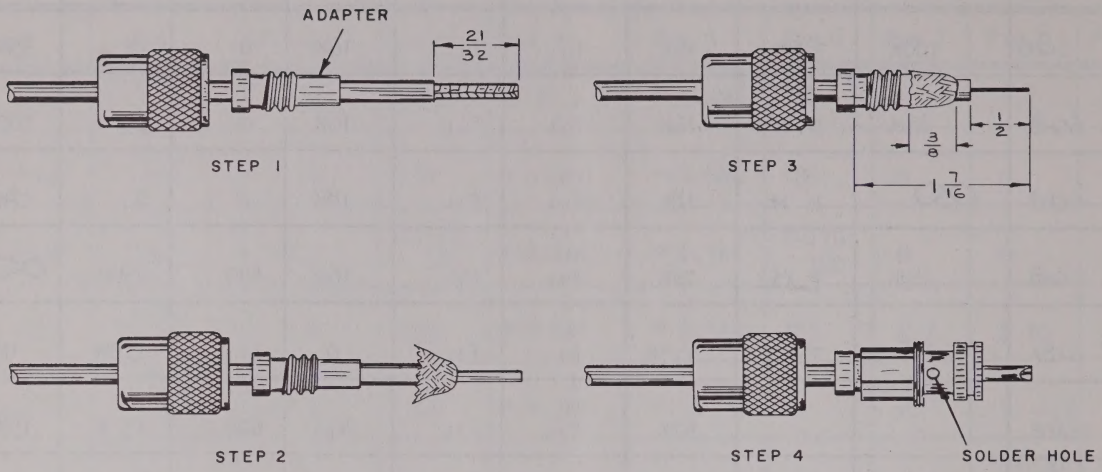
ALL READINGS TAKEN FROM CHASSIS GROUND IN RECEIVE CONDITION. SQUELCH AND VOLUME AT MINIMUM SETTING. READINGS MAY VARY DUE TO NORMAL COMPONENT TOLERANCES AND METER USED FOR MEASUREMENT.

SUPPLY VOLTAGES

117 V AC INPUT

CAPACITOR	RECEIVE	TRANSMIT
C-54	205V	270V
C-55A ⌂	135V	135
C-55B □	132V	0
C-55C △	60V	0
C-58A ⌂	180V	250V

MEASURED FROM POSITIVE TERMINAL OF FILTER CAPACITORS TO CHASSIS GROUND.



ASSEMBLING ANTENNA PLUG TO RG-58U
OR OTHER 1/4" COAXIAL CABLE

FIG. 3

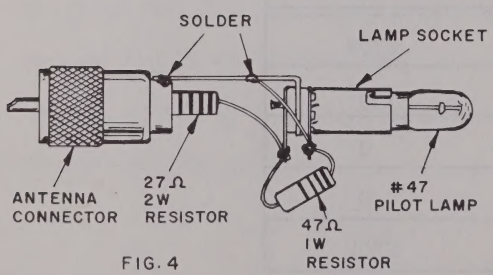


FIG. 4

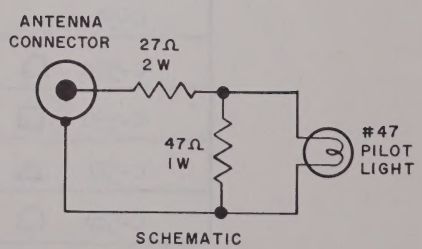


FIG. 5

PEARCE SIMPSON
RECOMMENDED DUMMY ANTENNA FOR CITIZENS BAND TRANSMITTER ADJUSTMENTS.

RESISTORS

ITEM	DESCRIPTION	PART NUMBER
R-1	470K 1/2 W carbon	2001-474
R-2	47K 1/2 W carbon	2001-473
R-3	47K 1 W carbon	2002-473
R-4	1K 1/2 W carbon	2001-102
R-5	22K 1/2 W carbon	2001-223
R-6	100K 1/2 W carbon	2001-104
R-7	15K 2 W carbon	2003-153
R-8	47K 1/2 W carbon	2001-473
R-9	2.2 Meg 1/2 W carbon	2001-225
R-10	2.2K 1/2 W carbon	2001-222
R-11	1 Meg 1/2 W carbon	2001-105
R-12	2.2K 1/2 W carbon	2001-222
R-13	1 Meg 1/2 W carbon	2001-105
R-14	100K 1/2 W carbon	2001-104
R-15	2.2K 1/2 W carbon	2001-222
R-16	470 ohm 1/2 W carbon	2001-471
R-17	2.2 K 1/2 W carbon	2001-222
R-18	2.2K 1/2 W carbon	2002-222
R-19	22K 1 W carbon	2002-223
R-20	1 Meg 1/2 W carbon	2001-105
R-21	100K 1/2 W carbon	2001-104
R-22	47K 1/2 W carbon	2001-473
R-23	1 Meg 1/2 W carbon	2001-105
R-24	470 K 1/2 W carbon	2001-474
R-25	500K Volume Control	2008-018A
R-26	470 ohm 1/2 W carbon	2001-471
R-27	1 Meg 1/2 W carbon	2001-105
R-28	1 K 1/2 W carbon	2001-102
R-29	4.7 Meg 1/2 W carbon	2001-475
R-30	100K 1/2 W carbon	2001-104
R-31	22K 1/2 W carbon	2001-223
R-32	47K 1/2 W carbon	2001-473
R-33	47K 1/2 W carbon	2001-473
R-34	15K Squelch control	2008-019A
R-35	1 Meg 1/2 W carbon	2001-105
R-36	1 Meg 1/2 W carbon	2001-105
R-37	1K 1/2 W carbon	2001-102
R-38	1 K 1/2 W carbon	2001-102
R-39	8.2K 1W carbon	2002-822
R-40	27K 2 W carbon	2003-273
R-41	27K 2 W carbon	2003-273
R-42	47K 1/2 W carbon	2001-473
R-43	47K 1/2 watt carbon	2001-473
R-44	47K 1/2 W carbon	2001-473
R-45	270 ohms 1 W carbon	2002-271
R-46	560 ohms 1 W carbon	2002-561
R-47	20 ohms 5 W wirewound*	2011-002
R-48	3.9 ohms 1 W carbon *	2002-039
R-49	1K 1/2 W carbon	2001-102
R-50	2K 5W wirewound	2011-001
R-51	220 ohms 1/2 W carbon	2001-221
R-52	1K 2W carbon	2003-102

*Not used in 32 Volts DC Model

Capacitors

ITEM	DESCRIPTION	PART NO.
C-1	.001 MFD 20% 1 KV Disc	0401-015
C-2	3.3 PF 10% 500V Tubular	0401-043
C-3	1.0 PF 10% 500 V Tubular	0401-041
C-4	3.3 PF 10% 500 V Tubular	0401-043
C-5	3.3 PF 10% 500 V Tubular	0401-043
C-6	280 PF Mica Trimmer (Neut.)	0403-007
C-7	.001 MFD 20% 1 KV Disc	0401-015
C-8	23 PF Variable (Plate Tune)	0403-014
C-9	.01 MFD 20% 1 KV Disc	0401-022
C-10	23 PF Variable (Ant Tune)	0403-014
C-11	270 PF Mica Trimmer (Ant Loading)	0403-025
C-12	280 PF Mica Trimmer (Lamp Brightness)	0403-007
C-13	.01 MFD 20% 1 KV Disc	0401-022
C-14	.01 MFD 20% 1 KV Disc	0401-022
C-15	.001 MFD 20% 1 KV Disc	0401-015
C-16	12 PF Ceramic Trimmer	0403-015
C-17	18 PF 10% NPO Disc	0401-056
C-18	47 PF 20% N1500 Disc	0401-035
C-19	.01 MFD 20% 1 KV Disc	0401-022
C-20	3.3 PF 10% 500V Tubular	0401-043
C-21	1.0 PF 10% 500V Tubular	0401-041
C-22	.001 MFD 20% 1 KV DISC	0401-015
C-23	.01 MFD 20% 1 KV Disc	0401-022
C-24	200 PF NPO Disc	0401-053
C-25	.01 MFD 20% 1 KV Disc	0401-022
C-26	.01 MFD 20% 1 KV Disc	0401-022
C-27	.05 MFD 600 V Disc	0401-011
C-28	Variable (Receiver Tuning)	0403-024
C-29	.01 MFD 20% 1 KV Disc	0401-022
C-30	200 PF NPO Disc	0401-053
C-31	200 PF NPO Disc	0401-053
C-32	47 PF 20% N1500 Disc	0401-035
C-33	47 PF 20% N1500 Disc	0401-035
C-34	.01 MFD 20% 1 KV Disc	0401-022
C-35	.005 MFD 20% 1 KV Disc	0401-018
C-36	3.3 PF 10% 500V Tubular	0401-043
C-37	.05 MFD 600V Disc	0401-011
C-38	330 PF 20% 1 KV Disc	0401-037
C-39	330 PF 20% 1 KV Disc	0401-037
C-40	.001 MFD 20% 1 KV Disc	0401-015
C-41	4 MFD 100 V Electrolytic	0406-045
C-42	25 MFD 15V Electrolytic	0406-017
C-43	.01 MFD 20% 1 KV Disc	0401-022
C-44	.05 MFD MFD 600 V Disc	0401-011
C-45	.001 MFD 20% 1 KV Disc	0401-015
C-46	.05 MFD 600 V Disc	0401-011
C-47	.005 MFD 20% 1 KV Disc	0401-018
C-48	.01 MFD 20% 1 KV Disc	0401-022
C-49	200 MFD 20V Electrolytic	0406-031
C-50	.47 MFD 200 V Mylar *	0404-020
C-51	25 MFD 15V Electrolytic *	0406-017
C-52	.47 MFD 200V Mylar *	0404-020

***Not used on 32 V D.C. Model

PILOT LIGHTS	PART NUMBER
Channel Indicator Light 12V Min #1465	1801-017
Dial Light 12V Min #1465	1801-017

TUBES, TRANSISTORS AND DIODES

Item	Type	Function
V-1	6GH8	R.F. Amplifier/1st Audio Amplifier
V-2	6GH8	Mixer/Receiver Oscillator
V-3	6GH8	1st I.F. Amplifier/Transmitter Osc/Buffer
V-4	6GH8	2nd I.F. Amplifier/2nd Audio Amplifier
V-5	6T8A	Anl/Squelch Control Amplifier
V-6	12AB5	Audio Output/Modulator (12/117V DC)
V-7	6CZ5 (or) 6973	Transmitter Power Amplifier
Q-1	2N1540	DC Power Supply
Q-2	2N1540	DC Power Supply
Q-3	2N1540	DC Power Supply 32 VDC Model Only.
Q-4	2N1540	DC Power Supply " " " "
D-1	1N34A	S-Meter Rectifier *
D-2	1N34A	Detector
D-3	PS-1	Reverse Polarity Protector (12V only)
D-4	600 PIV	Power Supply Rectifier
D-5	600 PIV	Power Supply Rectifier
D-6	100 PRV 4 AMP	Reverse Polarity Protector (32V only)
V-6	25BK5	Audio Output/Modulator (32V only)

MISCELLANEOUS

Description	Part Number
Channel Selector Switch	2701-054
A C - D C Selector Switch*	2701-022A
Speaker, 3 Inch	2501-014
Microphone, Carbon	1601-013
Number Channel Indicator Buttons	0707-056 (set)
Control Knob	1301-046
Relay, Enclosed	1902-020
AC Power Cord*	2601-022
DC Power Cord	2601-003

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* Not used on 32 V. DC Model

The following parts are used on the 32 volt D.C. model only.

2 (additional)	2N1540	Power Supply Transistors.
1	Power Transformer	1202-126
1	500 MFD 50 Volt	0406-039
1	25 BK5 tube	
1	5 ohm 10 watt	2005-050
1	8 ohm 10 watt	2005-080
2	1K 2 watt	2003-102
1	37 ohm 5 watt	2011-015
2	120 ohm 1 watt	2002-121
4	4.7 ohm 1 watt	2000-004
2	.05 MFD 600 volt	0401-011
3	.02 MFD 600 volt	0401-013
2	Metal Covers (Aqua)	1510-018

Capacitors (cont'd)

ITEM	Description	Part No.
C-53	.01 MFD 20% 1 KV Disc *	0401-022
C-54	80 MFD 250 V Electrolytic	0406-036
C-55	80-20-10 MFD, 250-250-250 V ELECT	0406-037
C-56	.001 MFD 20% 1 KV Disc *	0401-015
C-57	.01 MFD 20% 1 KV Disc	0401-022
C-58	40-2-100 MFD 400-100-25 V ELECT	0406-038

R.F. Coils

ITEM	Description	Part No.
T-7	Shielded Osc. Coil (Xmtr) 27 MC	1201-067
T-4	R.F. Transformer, 27 MC	1201-055
T-11	Xmtr. Output Indicator Transformer	Special
L-1	Antenna Input Coil (RCVR)	1201-075
T-5	R.F. Transformer, 27 MC	1201-055
T-6	R.F. Transformer, 27 MC	1201-055
T-8	I.F. Transformer, 455 KC	1201-026
T-9	I.F. Transformer, 455 KC	1201-026
T-10	I.F. Transformer, 455 KC Output	1201-098
T-12	Tunable Osc. Coil (RCVR)	1201-091A
T-3	Plate Tank/Antenna Load Coil	1201-099

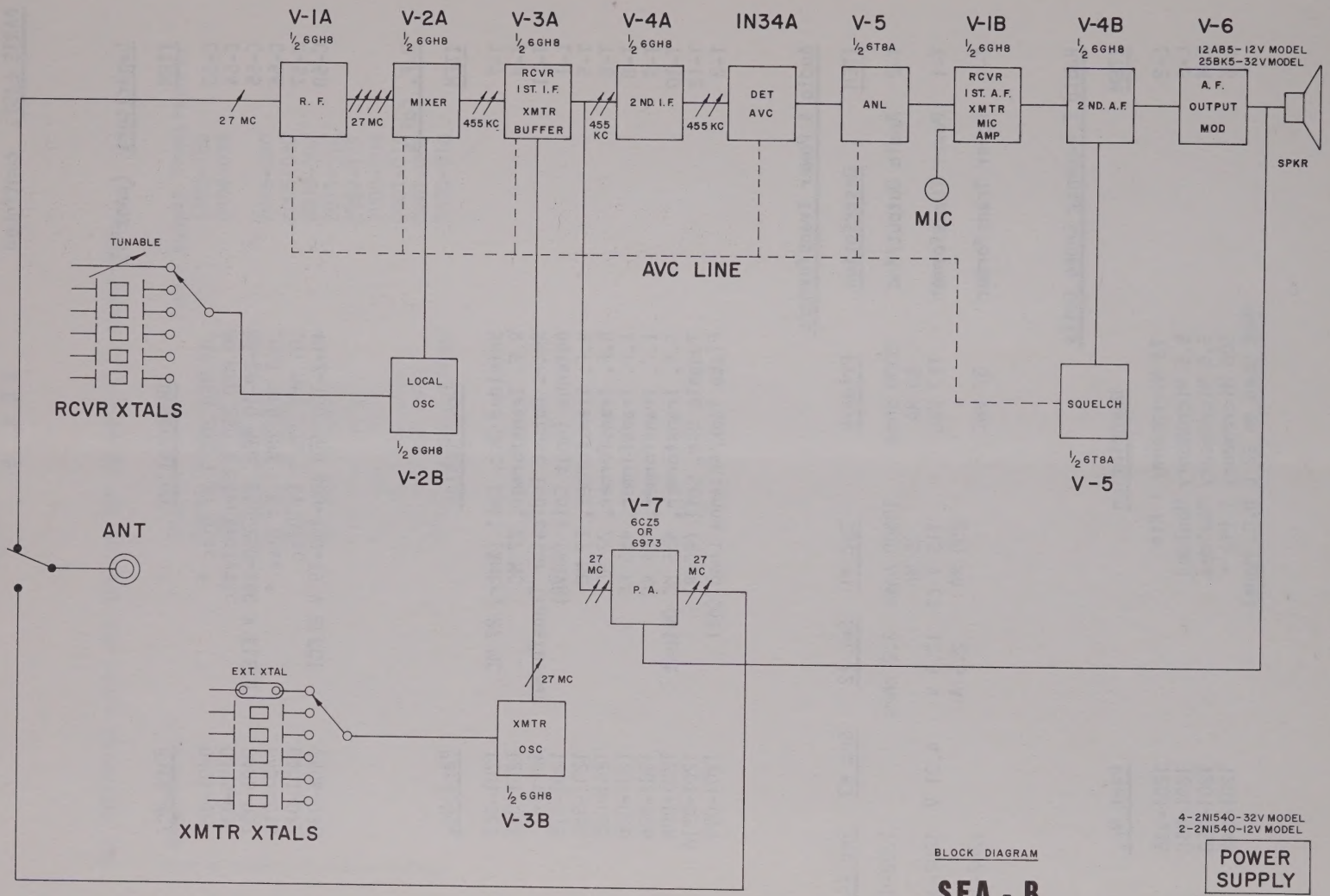
Audio & Power Transformers

ITEM	Description	Primary	Sec #1	Sec #2	Sec #3	Sec #4
T-2	Audio Output/Mod	5000 ohms 50 MA	10500 ohms 25 MA	3.2 ohms		1202-088
T-1	Power Transformer	117 VAC	115 V CT 250 MA	12.6 V 2.5 A	4.21 V	1202-089
T-1	Power Transformer	32 VDC				1202-126

Radio Frequency Choke Coils

ITEM	Description	Part No.
L-2	73 Microhenry 1 Pie	1201-036
L-3	5.6 Microhenry Moulded	1201-058
L-4	5.6 Microhenry Moulded	1201-058
L-5	500 Microhenry 1 Pie *	1201-042

*Not Used on 32 C D.C. Model

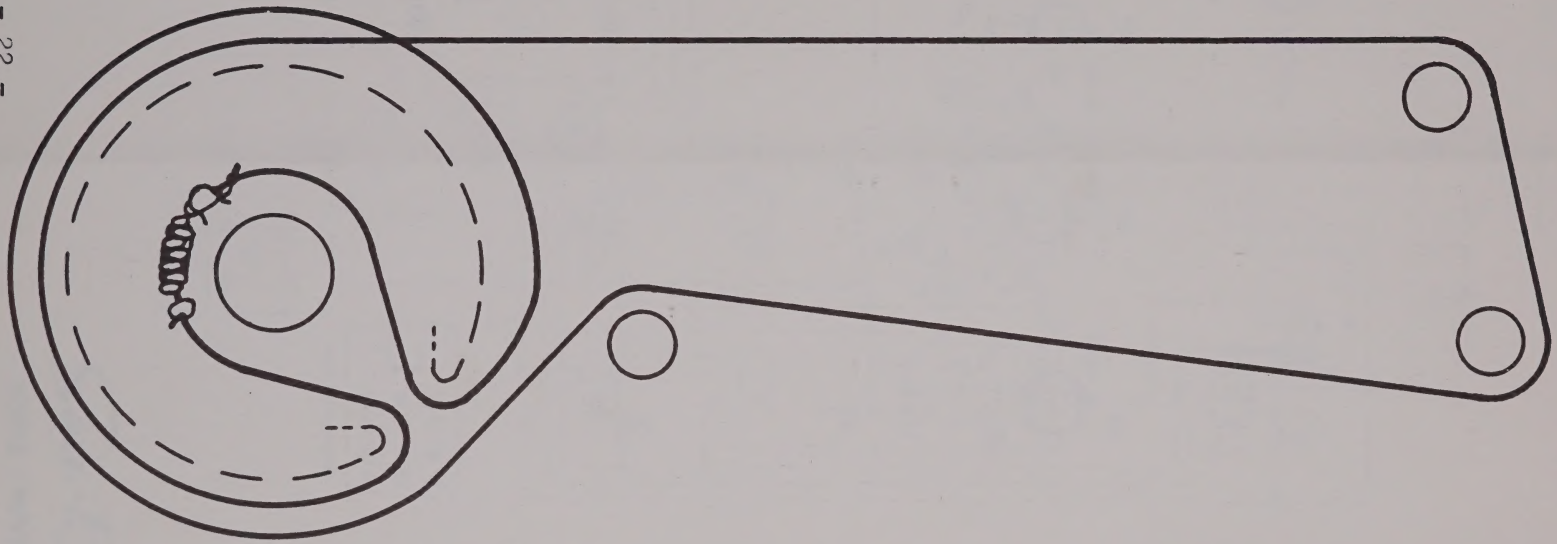


BLOCK DIAGRAM

SEA - B

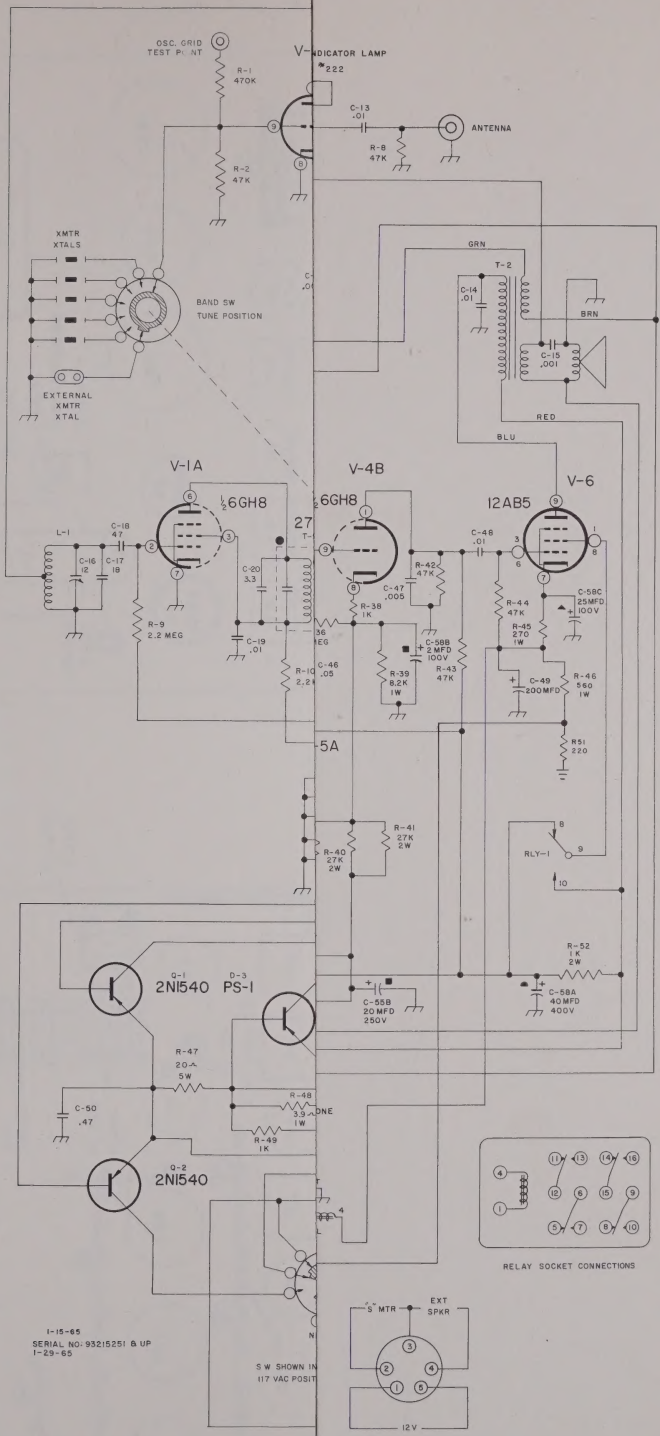
DIAL CORD DRIVE

TUNABLE RECEIVER



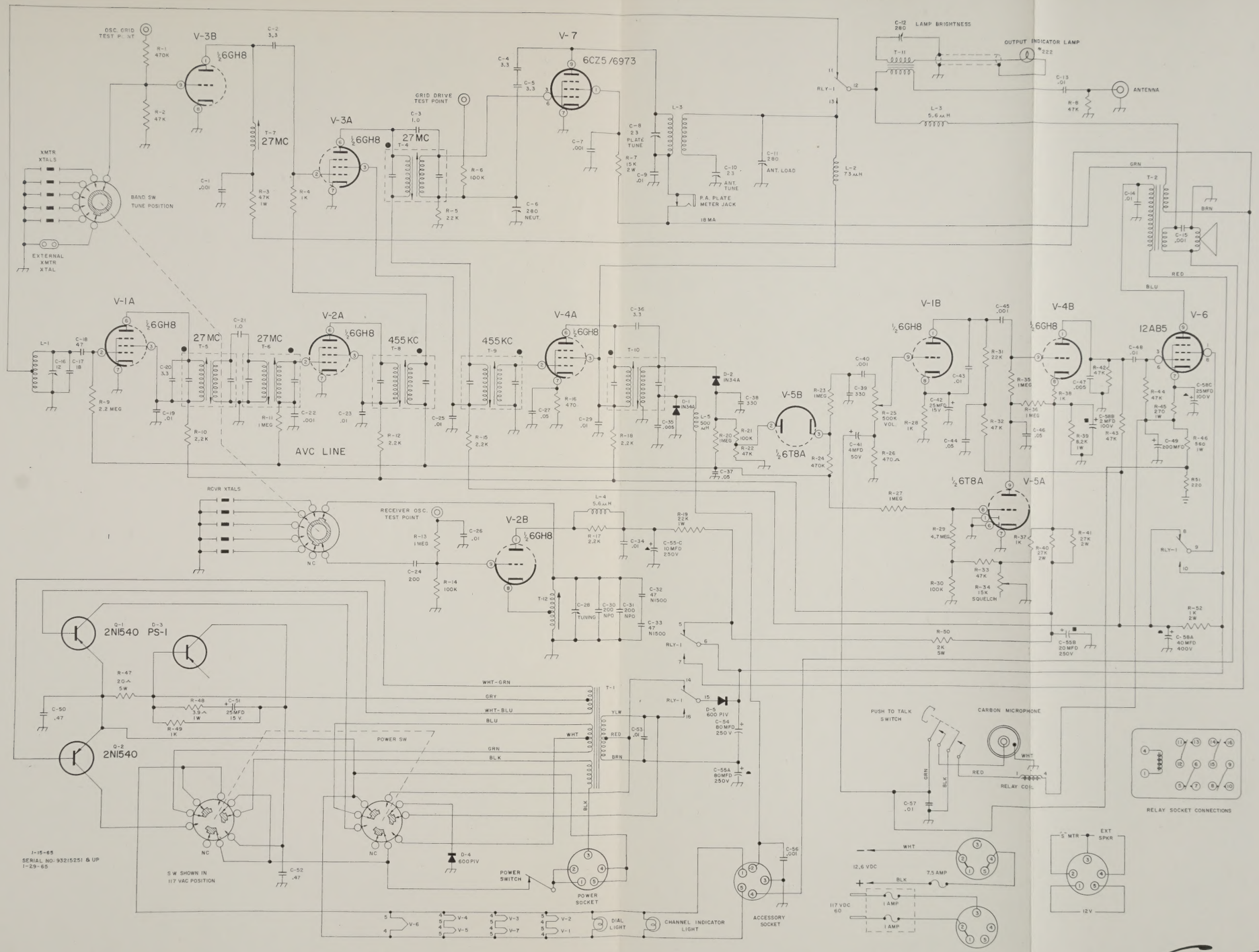
TUNING GANG FULLY CLOSED

TOWING CABLE ENTRY CUTOUT
TRANSPONDER RECEIVER
DIAL CORD DRIVE



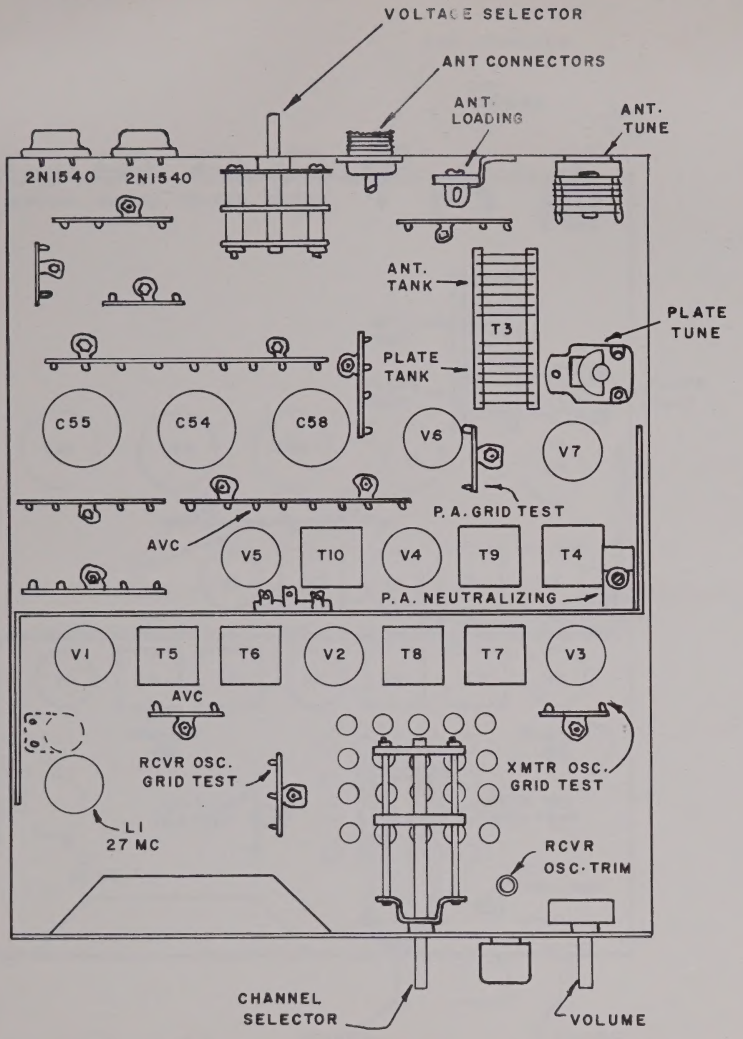
Sea-B

12VDC / 117VAC



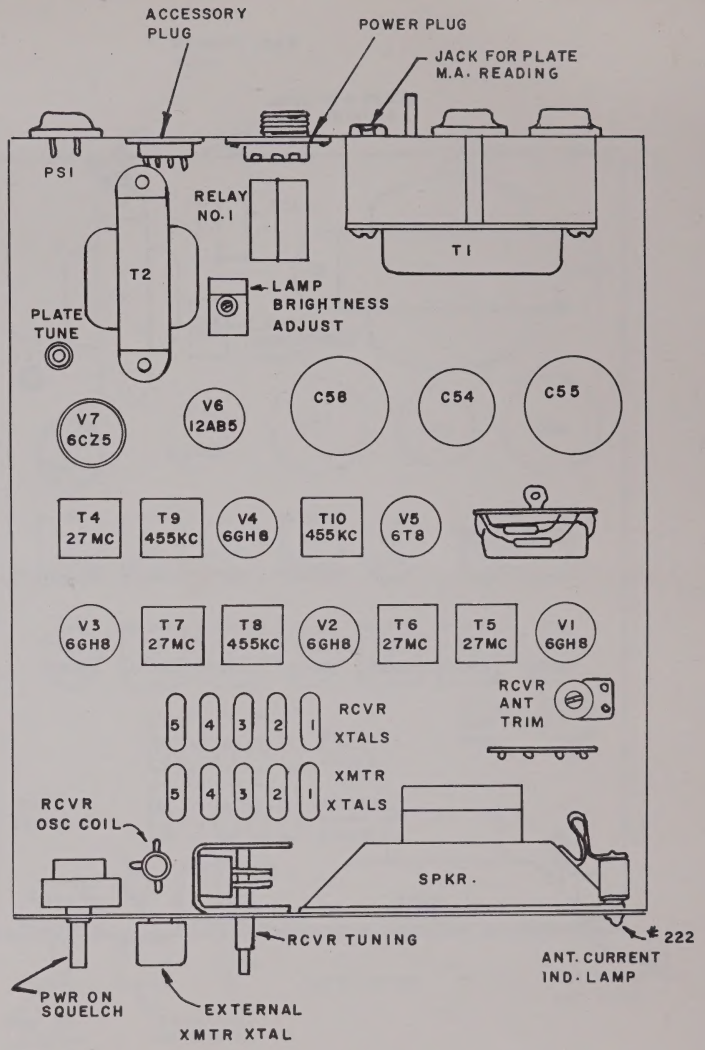
Sea-B

12VDC / 117VAC

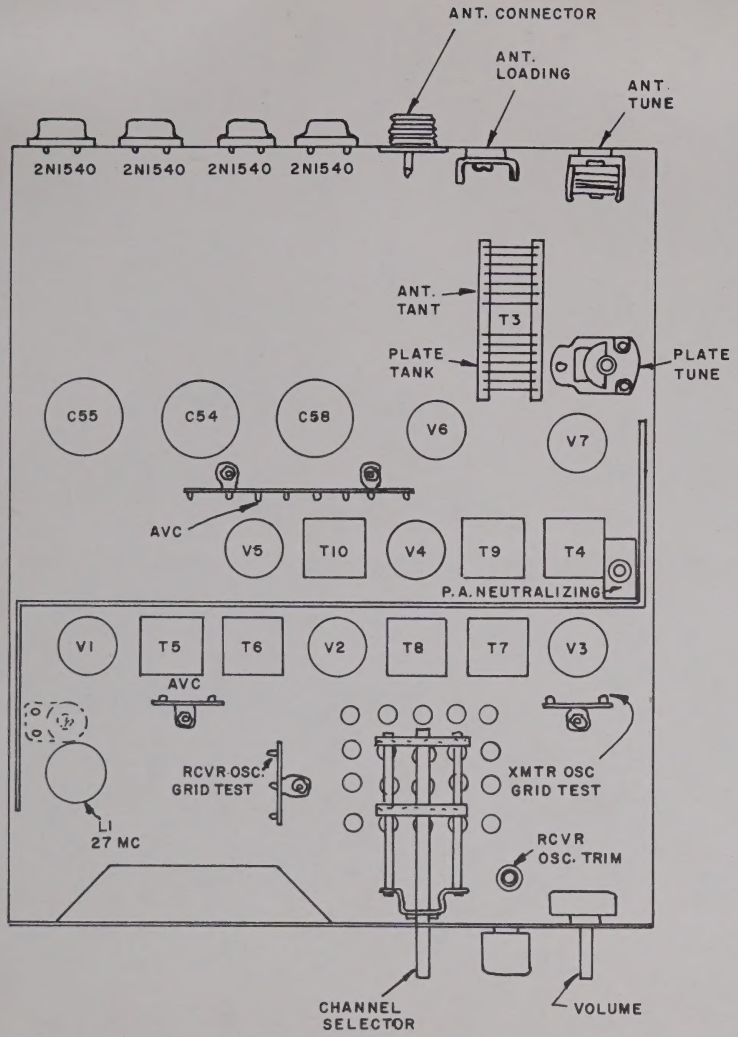


BOTTOM VIEW

12 VDC/117 AC

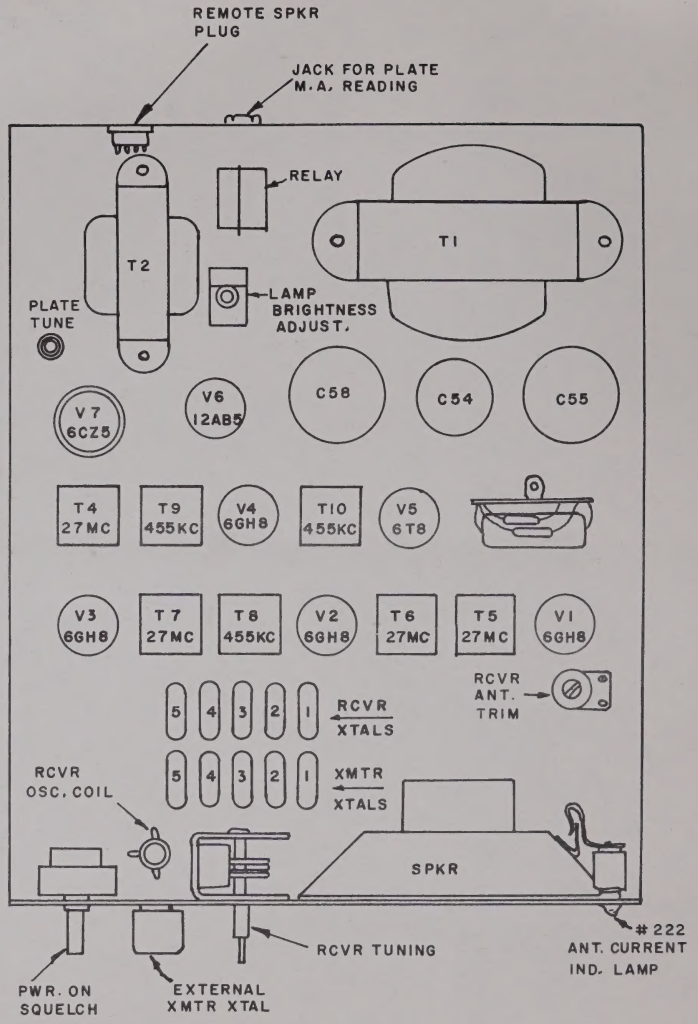


TOP VIEW



BOTTOM VIEW

32VDC



TOP VIEW